Responding to the Aftermath of the Mount Saint Helens Eruption: Analysis and Communication of Uncertainty Through Scenario Planning Part 2

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What Was Accomplished

- Scenarios help DM recognize uncertainty
- Scenarios help DM choose
  - Attitudes toward uncertainty
  - Cost and “regret “concerns
    - Financial
    - Opportunity Cost (Environmental)
- Choice was the SRS over the SSB Adaptive Approach

Questions in Retrospect --Recognizing that the SRS was chosen

- What was known in 1985 that would have made the scenarios supporting an adaptive (SSB) approach *credible* ?

What conditions and circumstances would have made the scenarios supporting an adaptive (SSB) approach *acceptable*?

Scenarios Supporting the SRS Required High Sediment Budget

- What did the 1985 Decision Document Report?
  - Declining sediment budget estimate
    - Comprehensive plan
    - Feasibility study
    - Decision Document
  - Decay curve suggested declining urgency as each year passed

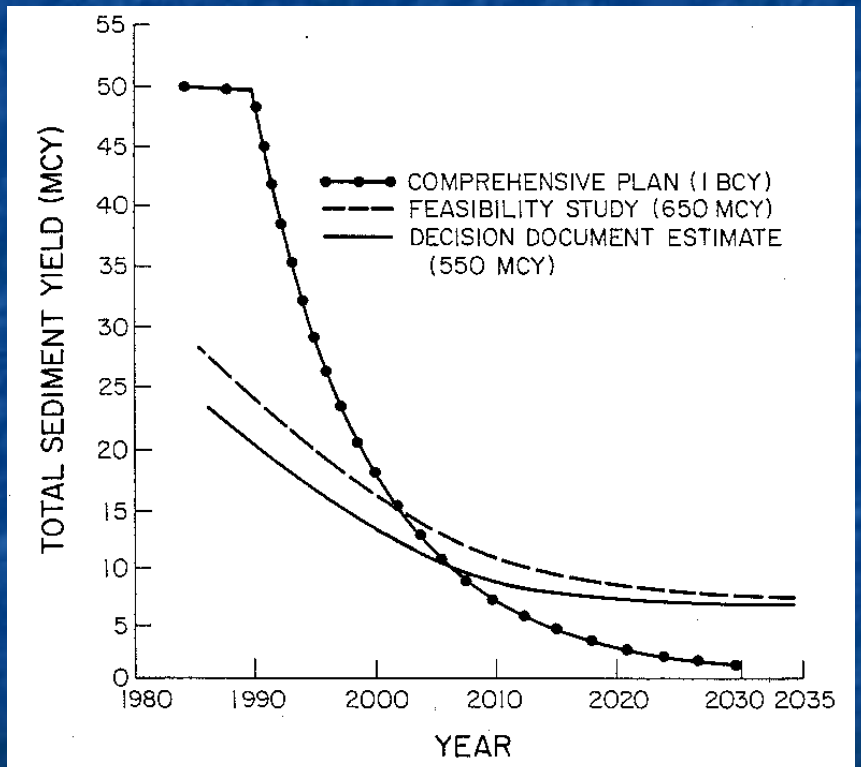

Figure 2. Predicted Erosion from the Avalanche

Scenarios Supporting the SRS Required High Sediment Budget

- What did the 1985 Decision Document Report?
  - Sediment monitoring data from the outset below projected loading
  - “Expert panel” (no ITR) adjustment factor added 25% to best estimate

Scenarios Supporting the SRS Required Unstable Channels

- What did the 1985 Decision Document Report?
  - Channels showed significant armoring
- picture

The Scenarios Supporting the SRS Required Limited Recovery of the Watershed

- What did the 1985 Decision Document Report?
- The watershed was rapidly re-vegetating

- Picture –

Scenarios Supporting the SRS Required Constant and Significant Volcanic Activity

- What did the 1985 Decision Document Report?
- The mountain displayed a tendency to quiescence

Reflections on the Scenarios

- Scenario development was not original intent
- Need to quickly hone in on decision-relevant uncertainties
  - Example – eruption frequency
- Needed a willingness to
  - Admit and report uncertainty
  - Carry multiple alternatives to high level of design detail and analysis

Reflections on the SRS Choice

- Organizational culture clung to an original vision and resisted continuing analysis
- Only ASACW was engaged in building and understanding scenarios
  - lingering images of the disaster was dominant frame of reference
- Environmental logic of letting system naturalize / self design had few advocates
  - Environmental cost was not a strong consideration
- Uncertainty of future funding commitments to an adaptive SSB program were key

ASACW Perspectives

- Do not rush to decision (demands continuing analysis)
  - Increase certainty before making high cost irreversible decision
  - Sumps were in place throughout
- Passage of time made the SSB scenario more credible and acceptable
- Why not say so?
  - Understanding the Transmittal Letters

Footnote to the Story

- SRS was full by 2004
  - 102 MCY trapped
- Final decision document estimate of E was 550 MCY
  - About 200 MCY to be eroded between 1998 and 2004.
- If less than .64 E eroded then SSB was cost-preferred (risk equivalent) alternative
  - 102/200 = .50 E (trap vs. yield)